DOCUMENT RESUME

ED 186 770 CE 025 432

| | |
|---|---|
| AUTHOR | Mills, Joe D. |
| TITLE | Development and Validation of a Competency-Based Preservice/Inservice Learning System for Vocational Teachers. Final Report. |
| INSTITUTION | Florida State Dept. of Education, Tallahassee. Div. of Vocational Education. |
| SPONS AGENCY | Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C. |
| BUREAU NO | 498AH60198 |
| PUB DATE | Jun 77 |
| GRANT | G007603814 |
| NOTE | 56p.; Some of the appendix materials will not reproduce well due to light and broken type. |
| EDRS PRICE | MF01/PC03 Plus Postage. |
| DESCRIPTORS | Administration; *Competence; *Competency Based Teacher Education; Criterion Referenced Tests; *Curriculum Development; Delivery Systems; Evaluation Criteria; *Individualized Instruction; Inservice Teacher Education; Instructional Materials; *Multimedia Instruction; Objectives; Preservice Teacher Education; *Skills |

ABSTRACT

The purpose of this project was to develop and field test a modularized, individualized, multimedia learning system designed to produce vocational instructors who are competent to implement and manage a totally individualized curriculum delivery system. A team of instructional designers worked with practicing vocational teachers and teacher educators to (1) determine the competencies and objectives of the system; (2) determine the content of instructional materials; and (3) formatively evaluate the instructional materials. Project effort resulted in a learning system called FACIT (Florida's Approach to Competency-Based Individualized Teaching). The system consists of thirty-one competencies, organized into six components: goal setting, objectives, criterion-referenced testing, learning experiences, evaluation, and instructional management. Each competency has at least one print-learning option, and most include a second learning option in an alternative medium. Three conclusions of the study are that (1) there are a set of commonly agreed-upon competencies central to the individualization of competency-based instruction; (2) FACIT is a unique approach that includes elements of many other theoretical and practical approaches; and (3) FACIT provides a model for the concepts it is designed to teach. (FACIT competencies and objectives, bibliographic citations of over 200 materials reviewed, and a list of 46 FACIT instructional materials are included as appendixes.) (MEK)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED186770

Final Report

Project No. 498AH60198
Grant No. G00-76-0-3814

# DEVELOPMENT AND VALIDATION OF A COMPETENCY-BASED PRESERVICE/INSERVICE LEARNING SYSTEM FOR VOCATIONAL TEACHERS

Joe D. Mills
Division of Vocational Education
Florida Department of Education
Knott Building
Tallahassee, Florida

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

June 1977

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

CE 025 432

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Occupational and Adult Education

## ABSTRACT

### Development and Validation of a Competency-Based Preservice and Inservice Learning System for Vocational Teachers

The purpose of the project was to develop and field-test a modularized, individualized, multimedia learning system designed to produce vocational instructors competent to implement and manage a totally individualized curriculum delivery system. In order to develop the learning system, a team of instructional designers worked with practicing vocational teachers and teacher educators (1) to determine the competencies and objectives of the system, (2) to determine the content of instructional materials, and (3) to formatively evaluate the instructional materials. In addition to developing the learning system, the project staff designed and conducted several workshops and presentations to disseminate information on the learning system.

Project efforts resulted in a learning system called FACIT (Florida's Approach to Competency-based Individualized Teaching). The system consists of 31 competencies, organized into six components: Goal Setting, Objectives, Criterion-Referenced Testing, Learning Experiences, Evaluation and Instructional Management. There is at least one print learning option for each competency, and for most competencies there is a second learning option in an alternative medium.

As a result of this project, it can be concluded (1) that there is a set of commonly agreed-upon competencies important in the individualization of competency-based instruction, (2) that FACIT is a unique approach to competency-based instruction, an approach that includes elements of many other theoretical and practical approaches, and (3) that FACIT provides a model for the concepts it is designed to teach.

TABLE OF CONTENTS


| | | PAGE |
|---|---|---|
| ABSTRACT | | |
| CHAPTER 1. | INTRODUCTION . . . . . | 1 |
| CHAPTER 2. | PROCEDURES . . . . . | 5 |
| CHAPTER 3. | RESULTS . . . . . | 10 |
| CHAPTER 4. | CONCLUSIONS . . . . . | 16 |
| CHAPTER 5. | RECOMMENDATIONS . . . . . | 17 |
| REFERENCES | . . . . . | 18 |

APPENDICES:

| | | |
|---|---|---|
| A. | Facit Competencies and Objectives . . . . . | 20 |
| B. | Materials Reviewed in the Development of FACIT . . | 31 |
| C. | FACIT Instructional Materials . . . . . | 47 |

# CHAPTER 1

# INTRODUCTION

## Purpose

The purpose of the project was to develop and field-test a modularized, individualized, multimedia learning system designed to produce vocational instructors competent to implement and manage a totally individualized curriculum delivery system. A competency-based learning system designed to train vocational instructors in the individualization skills needed in a competency-based setting was the major product of the project. All vocational program areas and vocational school settings were studied in the development of the learning system.

## Need for a Competency-Based Teacher-Training System

Those who read the professional education literature and attend professional education meetings are consistently exposed to the growth of competency-based teacher education (CBTE).[1] Schalock (1975) writes: "In the brief period since the completion of Phase I of the National Center for Educational Research and Development, U.S. Office of Education, approximately half of the teacher education institutions in the nation have begun either to operate, develop, or plan CBTE-type programs." He then goes on to quote Schmeider (1973): "Even more remarkable is the fact that within this same time period, approximately half of the states within the nation have adopted or are moving to adopt certification and accreditation standards that call for such programs, and the concepts of CBTE have begun to appear in the literature generally."

Given the sudden appearance and the rapid growth of CBTE, it is obvious that much implementation has been accomplished without a complete research base. Rosenshine (1973) concludes his discussion of the inadequacies of CBTE research with "One hopes that institutions engaged in training teachers will cooperate in developing a systematic and cumulative knowledge base."

In addition to the problem of a weak or nonexistent research base for CBTE, there is the unresolved need for a model of teacher competencies (Joyce, 1973). Joyce sees the possibility, with the selection of an

---

[1]The most pervasive definition of competency-based teacher education is by Elam (1971): "...in performance-based programs performance goals are specified and agreed to in rigorous detail in advance of instruction. The student must either be able to demonstrate his ability to promote desirable learning or exhibit behaviors known to promote it. He is held accountable, not for passing grades, but for obtaining a given level of competency in performing the essential tasks of teaching; the training institution is itself held accountable for producing able teachers. Emphasis is on demonstrated product or output."

inadequate teacher model to delineate competencies, that the model would include teacher behaviors irrelevant to teaching needs. Many leaders in the field of competency-based teacher education (cf. Houston, Jones, & Howsam, 1973) are concerned with the tendency to use CBTE to instruct in traditional competencies, while, in fact, education is moving toward different teacher roles and functions. Houston, Jones, and Howsam list first, in characteristics of the learner and learning in the future: "Learning will be individualized. It will cease to be packaged by subjects, grades, semesters, or years... ."

Hyer (1972) notes the current failure of teacher educators to prepare teachers for individualizing: "Teachers continue to be trained in the standard foundations and methods courses... ." Preparation is in the context of the self-contained classroom oriented to the teaching of academic subjects. It assumes a teacher-disseminated learning pattern based chiefly on textbooks supplemented by other print materials.

Attempting to compile a list of agreed-upon role traits of teachers, Adams (1972) examined over 100 systems for categorizing teacher behaviors. He identified a total of 214 functions researchers expect to be associated with the teacher's role. Among the most frequently mentioned functions of teachers were "inform-tells," "directs," and "lectures." Not mentioned were activities essential to individualization, such as "diagnoses," "counsels," "guides," "tutors." Mentioned in three or fewer of the 100 systems examined were "prescribes," "facilitates," and "paces." It seems clear, as Flynn, Chadwick, and Fischler (1969) believe, that individualized instruction implies a set of competencies that represent a radical departure from the conventional notions of the teacher's role.

The culminating point of Joyce's paper (1973) on building the model of the teacher is: "It would be a pity to go to all the trouble of developing a competency-based system based on an obsolete role of the teacher." Yet the existing literature appears to support this exact course of action.

The focus of this project, therefore, was on the development of competency-based teacher-training materials based on validated competencies needed in the individualization of vocational instruction. Thus, the Florida Curriculum Delivery System (CDS) individualized model, developed during two years of research with vocational teachers in the State of Florida, served as the basis for analysis of the set of competencies to be used in training instructors in the techniques of individualization. The rationale for intense research and validation in the area of individualization techniques is derived from emphases and directions in vocational education in the State going back to early statements of need for competency-based training (Daniel, 1970; Golden, 1973) and from the State's desire to certify on the basis of demonstration of prespecified competencies (Florida State Department of Education, 1971). Moving steadily forward from the teacher-competency basis, the Division of Vocational Education in the State has made further moves into competency-based education through its involvement with the Vocational-Technical Education Consortium of States (V-TECS, 1972).

Through V-TECS, lists of critical entry-level skills are being derived from occupational surveys. These lists present instructors in a wide variety of vocational fields with the ability to center instruction on skill performances that provide employability for learners. In its annual conference of vocational educators in 1975, the Director of the Division of Vocational Education, Florida Department of Education, delivered a keynote address highlighting for all teachers the movements within the State that will combine to produce competency-based education. High on the State's priority list of activities for competency-basing is the model for individualization techniques that can be used in any vocational classroom to permit all learners to achieve competency in the given objectives. Individualization is here considered to be essential to competency-based education, although not synonymous with it. The assumption is that when a varied group of learners attempts mastery of a given group of skills, their needs will be sufficiently different to necessitate individualized instruction. The Florida Curriculum Delivery System model is a technology-based instructional model, which gives an instructor a full array of techniques by which to meet the needs of individuals as they attempt to demonstrate a standard of competence in one or more skills.

Conceptualized on the basis of a widely known curriculum model (Taba, 1967), the Florida model was developed through field analysis in vocational laboratory settings, and through a full review of the literature. The set of derived individualization techniques was then behaviorally described, and validated with a selected group of vocational instructors in the State. Preliminary field-test data indicate that all techniques can be used by instructors to meet the needs of individuals in the instructional setting, but that instructors typically use a small subset of the techniques regardless of the set of options open to them. Exposure to a procedural manual describing the developmental and operational uses of individualization skills shows some signs of widening the set of techniques, with variations by individual, type of setting, and area of instruction.

Since individualization is assumed to be a necessary concomitant of competency-based education, a learning system that produces individuals competent to perform the techniques should provide a powerful portion of a competency-based teacher-education program. Examination of lists of teacher competencies derived for current CBTE programs (cf. Houston, Jones, & Howsam, 1973) shows that skills listed for individualization are either largely underdeveloped, or are developed less comprehensively than is true in the CDS model. The learning system developed by this project then will serve the purpose of completing, or substantially supplying, the individualization-competencies portions of existing CBTE programs in teacher-training institutions across the nation.

The Florida individualization model contains components and procedures for individualization that will develop teacher skills in individualizing by (1) goal setting, (2) use of performance objectives and criterion-referenced tests, (3) learning experiences, (4) learning strategies, and (5) evaluation of the individualized instruction system. In reviewing the literature, one can find no set of individualization techniques that cannot be subsumed by this model; indeed, no "model" of individualization can

be found in the current annotated bibliography of individualization publications and projects (Magisos & Stakelon, 1975). (The same observation can be made of other descriptive lists of CBTE publications, such as that published by AACTE, etc.)

The product developed by this project, then, was designed to "exemplify what it explicates (Houston, Jones, & Howsam, 1973)" by using the CDS individualization model to develop and implement a learning system readily transportable to any teacher-training institution to supply or supplement competencies in individualization of instruction. The product was a field-tested, modularized, individualized, multimedia learning system designed to produce vocational instructors competent to implement and manage a totally individualized curriculum delivery system.

Objectives of the Study

The following objectives guided the development and validation of a competency-based preservice/inservice learning system for vocational teachers:

1. To analyze the Florida CDS model and its components to determine instructional objectives in performance terms and to develop criterion-referenced measures to assess individual mastery of those objectives;

2. To review, select, and adapt existing instructional materials to match performance objectives following the CDS model procedures;

3. To develop new instructional materials determined to be needed, using the analysis, media selection, and instructional-strategies procedures of the CDS model;

4. To formatively evaluate and revise adapted and developed instructional materials, in both individual and small-group tryouts;

5. To develop an instructor's manual to ensure effective transportability of the learning system to a wide inservice/preservice population in the State of Florida;

6. To produce a validated learning system for use in inservice and preservice training programs of vocational teachers as they individualize instruction. (Validation will be conducted with vocational teachers of secondary, postsecondary, and special-needs students.)

7. To develop and begin to implement a plan for dissemination and diffusion of CDS products and processes within the State of Florida.

The procedures used in meeting the above objectives, the results of those procedures, and the conclusions based on those results are discussed in the next three sections, respectively.

## CHAPTER 2

## PROCEDURES

The procedures used in developing the learning system are discussed in terms of the project's major objectives.

### To Analyze the Florida CDS Model and Its Components, to Determine Instructional Objectives in Performance Terms, and to Develop Criterion-Referenced Measures to Assess Individual Mastery of Those Objectives

As this objective indicates, the learning-system instructional objectives and criterion-referenced tests were developed out of an analysis of the Florida CDS individualization model (Harrington, et. al., 1976). A step-by-step procedure involving initial development followed by repeated critique and revision was used. The first step was to analyze the CDS model to determine the minimum set of competencies vocational instructors need to individualize instruction. Several staff members carried out the analysis, working first individually and then in groups. Criteria such as practicality, efficiency, effectiveness, and importance to individualization were applied to each competency of the CDS model in order to determine the competencies.

After the initial list of competencies was determined, each competency was analyzed, to determine an initial set of performance statements, which would later be made into Mager-type objectives.

The project manager, evaluator, and other staff members evaluated the initial learning-system competencies and performance statements prior to having them critiqued by external sources: teacher educators and vocational teachers. After revisions, the competencies and performance statements were mailed to several teacher educators and vocational teachers; guidelines for evaluation accompanied each set of competencies and performance statements. Suggestions by the external evaluators for additions, deletions, and other revisions were discussed by the staff and incorporated where consistent with competency-based instruction, practicality, and other criteria.

At various stages in the materials-development process, the performance statements for the separate components of the learning system were developed into Mager-type objectives, with statements of performance, conditions, and criteria. These were evaluated and revised repeatedly as the instructional materials were evaluated. Similarly, the criterion-referenced tests for each objective were developed at various stages of the materials-development process and were revised along with the materials. The procedures for this will be described later, in connection with the formative evaluation process.

To Review, Select, and Adapt Existing Instructional Materials to Match the Learning-System Objectives

The materials-review process began once the initial performance statements were developed and continued throughout most of the project time period. The project staff was assisted in this process by the Career Education Center at Florida State University. A nationwide materials search was carried out by the Florida Educator's Information Service (FEIS), housed at the Career Education Center. FEIS obtained materials and catalogs from publishers and state departments of education, as well as ERIC, AIM, and ARM search reports. Lists of descriptions were provided by the project staff. As the materials were obtained, one or more project staff members examined then to determine their appropriateness to the CDS individualization model and learning system under development. Criteria such as appropriateness to the objectives, reading level, practicality, and cost were considered when evaluating the materials. A list of all materials reviewed was compiled, both to document the materials-review process and to provide a source for additional readings to be included with the learning-system materials.

To Develop New Instructional Materials

Major responsibility for developing instructional materials for each component of the CDS model was assigned to one or more project staff members. First-draft materials were developed first by analyzing the objectives into important subskills and consulting with one or more vocational teachers to determine the adequacy of the analysis and the practicality of applying the skills. The vocational teachers were asked questions like "How do you validate your objectives?" or "Can you tell me what steps you follow in evaluating your learning experiences?" The answers to questions like these were then put in narrative form and practice exercises included to highlight the important points. A preliminary format for the learning options was decided upon and, when time permitted, a second learning option was developed. The second option took the form of either a filmstrip, audiotape, or simulation activity, but covered the same content as its corresponding first learning option.

Following in-house evaluation of the newly developed instructional materials (learning options), most of the learning options were put into a preliminary stage of visual design for later field-testing. First learning options were given simple directional art and boldface titles and headings, while the second learning options were storyboarded and put on audiotape, as appropriate.

To Formatively Evaluate and Revise Adapted and Developed Instructional Materials

Formative evaluation of the instructional materials consisted of one-on-one, small-group and, in some cases, large-group evaluation. All

materials went through one-on-one evaluation with representatives from the target population: inservice vocational teachers and some preservice teacher trainees. One-on-one evaluation involved one project staff member working with one vocational teacher or trainee. The teachers were asked to work through a learning option and to note any difficulties they had. These difficulties were discussed with the teacher along with any other concerns the teacher had about the materials: terminology, directions, format, length, practicality of the skills being taught, etc. Some teachers volunteered their time to do the evaluations, while others were paid a consulting fee. The one-one-one evaluation usually took from one to four hours to complete; this included time to take the posttest for the learning option being evaluated. The teachers also critiqued the posttests.

Following revisions of the materials based on one-on-one evaluative feedback, the materials were put through small-group evaluation. This kind of evaluation involved using the materials in a setting closely approximating that of their normal use--in this case, in classroom settings and by individuals working on their own. Again, vocational teachers and teacher trainees provided the evaluative information. A materials critique form (adapted from Lawson, 1974) and personal interview were used to collect the needed information. After completing a learning option, the teacher completed a materials critique form, which asked a series of yes-no questions about each part of the learning option. For example, teachers were asked about the clarity of the objectives, the adequacy of the directions, the instructional value of the content, tests, and so on. In the classroom situation, only some of the students were interviewed personally about the learning options, although the entire class was given an opportunity to critique the materials. On the other hand, all teachers participating in the small-group evaluation as individuals were interviewed following completion of the learning option.

All learning options were revised as a result of the small-group evaluation. The decision as to which changes to make depended upon the success of the learning option based on posttest performance as well as upon the number and nature of the revisions suggested by the teachers. In most cases, when a first learning option was revised, the corresponding second learning option was also revised. Second learning options were still in storyboard form at the time of small-group evaluation.

Three of the learning-system components went through large-group evaluation, the most "natural" test of the materials. About 20 vocational teacher educators assisted by five vocational teachers held two-week workshops using some of the learning-system materials. These teacher educators and teachers were given two days of orientation and four days' training to prepare them to facilitate the workshops. Participants in the workshops represented vocational teachers, teacher educators, and county supervisors. All participants gave questionnaire feedback about the materials, and many participants were interviewed. In most workshops, participants used both the first and second learning options,

so they were able to make comparative judgments about the corresponding options. Second options were produced with color filmstrips and professionally produced audio. Following the large-group tryout, revisions were made in the learning options, again using test information and suggestions from the workshop participants.

To Develop an Instructor's Manual to Ensure Effective Transportability of the Learning System

The instructor's manual is called the Facilitator's Guide, in keeping with the self-instructional nature of the learning system. The content of the Guide was determined by analyzing the instructional materials, the training situations in which the materials would be used, and the skills and abilities of potential facilitators.

A first draft of the Facilitator's Guide was developed and submitted to several teacher educators and vocational teacher supervisors for review and critique. Guidelines for review and critique accompanied the Facilitator's Guide. These guidelines focused on criteria such as the simplicity and readability of the Guide and its ability to meet the needs of facilitators in a variety of situations. Feedback from the teacher educators and vocational teacher supervisors was taken into account in revisions of the Facilitator's Guide.

To Produce a Validated Learning System for Use in Inservice and Preservice Training Programs for Vocational Teachers

Production of the validated learning system involved the following major activities, some of which have already been described. First, the CDS model was analyzed to determine teacher competencies and performance statements, which were then evaluted by representatives from the target population. Second, performance statements were formulated as objectives, and first-draft instructional materials were developed, evaluated by project staff, and revised. Third, the revised materials were put through preliminary graphic design and editing, field-tested in one-on-one evaluation, and revised on the basis of the evaluative feedback. Fourth, the revisions were again edited and put through graphic design, field-tested in small-group evaluation, and similarly revised. Fifth, the revisions were edited once more, put through graphic design for large-group evaluation, and revised following evaluation. Sixth, the final revised materials were edited and put through the graphic-design process.

At various times during the project, editing was done by project editors or by editors hired on a contractual basis. All graphic design was contracted, first, to another state agency, the Career Education Center at Florida State University, and later to a private design studio, Bing Studios, located in Tallahassee.

Major production decisions were influenced by two primary and overarching criteria: product effectiveness and cost-effectiveness. The first criterion ensured that graphic-design decisions were consistent with and enhanced the instructional effectiveness of the materials. The second criterion, cost-effectiveness, was important in keeping the product within reasonable budgetary constraints for mass production by the State of Florida.

The procedure outlined above is somewhat general and does not indicate problems or exceptions to it.

To Develop and Begin to Implement a Plan for Dissemination and Diffusion of CDS Products and Processes Within the State of Florida

Because of (1) the workload involved in developing the preservice/inservice learning system and (2) the existence of a state agency whose major role is the development of diffusion plans for state-developed products, the project staff did not develop a dissemination and diffusion plan of CDS products and processes. The project staff did, however, contribute to the state's plan as well as carry out many informal dissemination/diffusion activities. These activities are discussed in the appropriate parts of the Results and Conclusions sections.

# CHAPTER 3

## RESULTS

The major focus of the project was the development of the competency-based preservice and inservice learning system for the training of vocational teachers. Standard formative evaluation procedures were followed in the development of the system. Most of the products that resulted from the project are part of the learning system called FACIT, which stands for Florida's Approach to Competency-based Individualized Teaching. Other products, though not part of the FACIT materials, were developed to support the FACIT dissemination and diffusion effort.

The competencies and objectives of the FACIT system appear in Appendix A. These, like the entire system, went through several revisions prior to reaching their final state. Some of the objectives are designed to test performance (e.g., writing objectives) while others test cognitive skills (e.g., identifying goal-setting information and sources). Field-test teachers and teacher educators identified these as the minimum set of competencies and objectives necessary in a competency-based situation.

Concurrent with the development of the FACIT instructional materials for each objective, a wide variety of instructional materials were reviewed for possible adoption or adaption. Appendix B contains a list of all materials reviewed. None of those reviewed was selected for adoption or adaption; however, many ideas and concepts were obtained from the materials reviewed and were included in the FACIT materials.

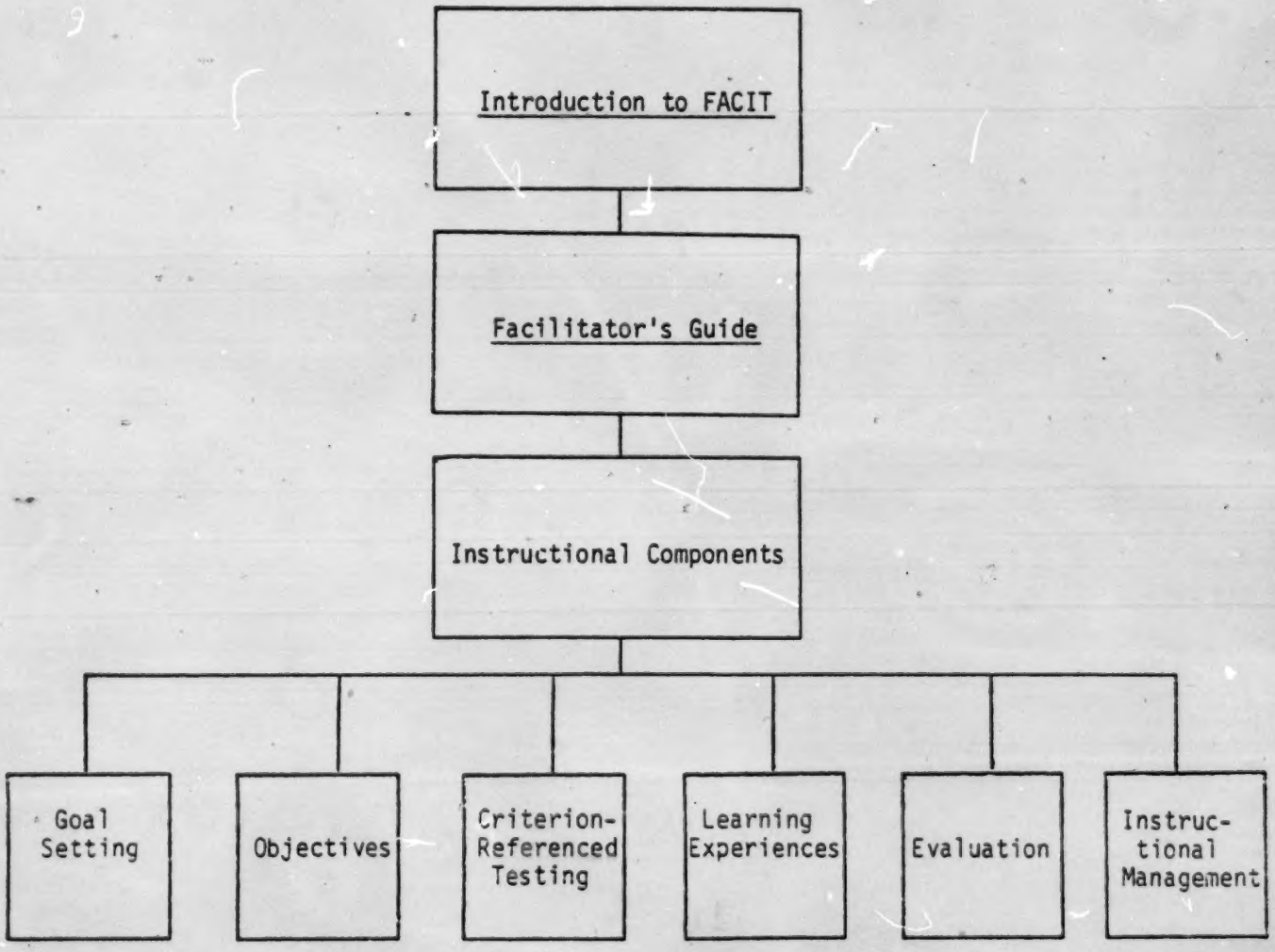
Since none of the materials reviewed was selected, the project staff decided to work closely with Florida vocational teachers in the development of instructional materials that were consistent with the Florida CDS individualization model. The materials developed were given the acronym FACIT, as described in the beginning of this section. FACIT is a learning system designed to provide teachers or teacher trainees with the knowledge and skills they need to implement and manage individualized, competency-based vocational programs. FACIT itself is individualized and competency-based, employing the same techniques that it teaches. It is built around 31 measurable, concrete teaching competencies. For most of these competencies, the system includes pretesting and posttesting; this allows individual users to undertake only the instruction each needs and to be certified as having attained specific, measurable teaching competencies.

The FACIT system emphasizes practice rather than theory and focuses on specific techniques and strategies that teachers can readily apply. Historical or background information is excluded. Each instructional unit gives users opportunity to practice the skills that are taught; none of the tests or practice exercises requires extensive writing.

FACIT is a flexible system. The techniques and strategies it teaches can be adopted or modified for use in almost any instructional setting or vocational field. The materials include examples from a broad cross-section of vocational fields and types of schools, and they present ways to adapt the system to meet the needs of individual teachers in their own instructional settings. The FACIT approach, which is teacher-based, has been proved successful in actual classroom settings.

The diagram below shows the basic elements in the FACIT package. These include an Introduction to FACIT, a Facilitator's Guide, and the instructional components.

The FACIT System



## The Introduction to FACIT

The Introduction to FACIT is comprised of this booklet and an accompanying filmstrip. This introduction presents an overall orientation to competency-based education and to the FACIT system.

## The Facilitator's Guide

A print booklet, the Facilitator's Guide to FACIT, explains how teacher educators or others can use the FACIT materials in training programs. It also presents information on the theoretical approach taken in the FACIT materials. Persons responsible for organizing and conducting training activities will need to use this guide, along with the materials in the instructional components.

## The Instructional Components

The 31 FACIT competencies are grouped according to the area of the vocational curriculum with which they deal. Six such groupings, called components, are included in the FACIT system. These six components are Goal Setting, Objectives, Criterion-Referenced Testing, Learning Experiences, Evaluation, and Instructional Management.

Each of the six components includes three basic parts: an overview, learning options, and a participant's guide.

1. The overview is a filmstrip that introduces the component, explains its importance in competency-based education, and describes the competencies that are taught in that component.

2. The learning options provide the basic instruction for each competency. In every case, there is a first option, called Learning Option 1 (LO-1), which presents instruction in print. For most competencies, there is also a second option, called Learning Option 2 (LO-2), which presents the same information as Learning Option 1, but through a different medium, such as a filmstrip, audiotape, or simulation game. For these second options, there is always a print booklet that accompanies the nonprint medium.

3. The participant's guide for each component includes a general description of the component, the procedures for using the component, a competency-by-competency description, and the tests and answer keys needed for all of the competencies in that component.

Within the learning options for a competency, content is organized to teach specific instructional objectives. These objectives are the same for both learning options in those cases where there are two options. Instructional objectives are stated in the beginning of the learning options and in the participant's guide. Tests for each competency are designed to

assess mastery of the instructional objectives. To master a competency, an individual must pass a test for each of the instructional objectives associated with that competency. If, for instance, there are three instructional objectives for a certain competency, then there will be three tests to be mastered for that competency.

The diagram that follows illustrates the standard parts of a FACIT component. It shows the contents of one component of the FACIT system, the Objectives component. This component has a participant's guide, an overview, four competencies, and seven learning options. All of the competencies for this component have a basic print option (Learning Option 1). In addition, two of them--Competencies A and C--have second-option filmstrips, while a third--Competency B--has a second-option audiotape. Only Competency D has no second option. (This diagram is meant to be only an example, of course. Some components have more competencies; others have fewer; and the number and type of second learning options also vary from component to component. The participant's guide for each component includes a diagram like this one, specifying the contents of that component.)

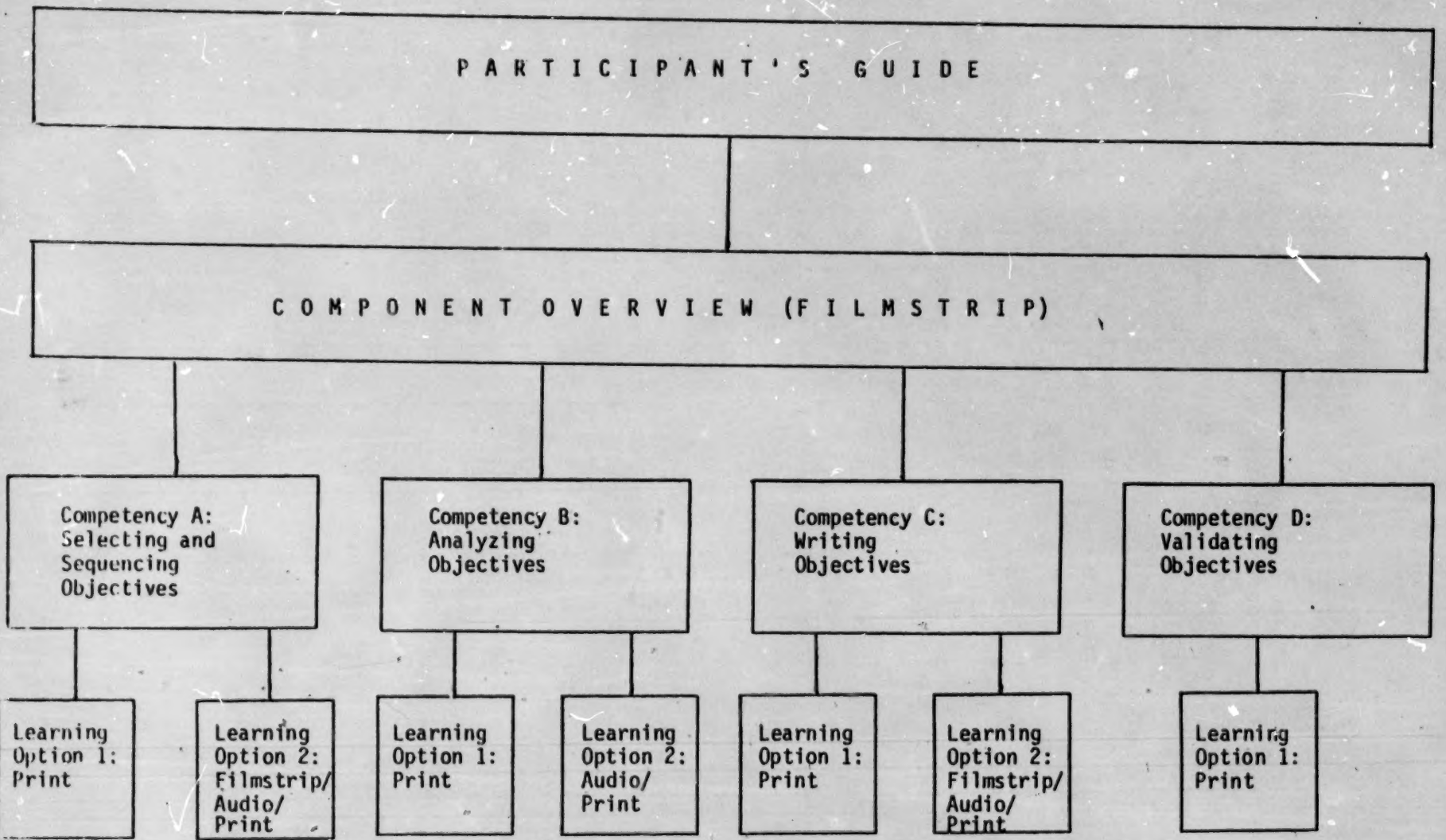
Appendix C contains a list of all materials included as part of the FACIT learning system.

The project staff developed several other products in addition to the FACIT materials. These products, which were used with the project's dissemination and diffusion efforts, included one individualization simulation activity, three small-group participation activities, a brochure describing FACIT, and numerous descriptive handouts.

Designing Individualized Learning Experiences (DILE) is a simulation activity designed to acquaint vocational instructors with the functions of instruction and the way to use them to tailor instruction to the needs of the individual. DILE includes descriptions of students, an instructional setting, and various strategies to be used in building an individualized lesson for the students described. Teachers work in small groups trying to design an individualized lesson. One member of each group presents his or her group's solutions to the other groups. One or more persons trained in FACIT facilitate the teacher's involvement in the activity.

The three small-group participation activities were designed with similar formats. In all three activities, participants first respond individually to a series of questions relevant to the topic of the activity. Then, they discuss their responses in a small group. Finally, they are given model answers to the questions and allowed to discuss the topic further in light of the answers. These activities allow the participants to profit from the varied backgrounds and experiences of each other. The topics of the activities are indicated by their titles: (1) Teacher and Student Roles in Competency-Based Education, (2) Statements Compatible with Competency-Based Education, and (3) Questions Teachers Ask about Competency-Based Education.

## OBJECTIVES COMPONENT


PARTICIPANT'S GUIDE
COMPONENT OVERVIEW (FILMSTRIP)
Competency A: Selecting and Sequencing Objectives
Competency B: Analyzing Objectives
Competency C: Writing Objectives
Competency D: Validating Objectives
Learning Option 1: Print
Learning Option 2: Filmstrip/ Audio/ Print
Learning Option 1: Print
Learning Option 2: Audio/ Print
Learning Option 1: Print
Learning Option 2: Filmstrip/ Audio/ Print
Learning Option 1: Print

A brochure describing FACIT and its development, and a variety of handouts designed for specific workshop needs were also developed by the project. The purpose of DILL, the small-group activities, and the brochure and handouts was to support the dissemination and diffusion of FACIT in workshops and presentations designed to create awareness of FACIT and competency-based education. The audience for these workshops and presentations varied from state- and district-level vocational administrators to vocational teacher educators to vocational teachers. Some of the workshops and presentations were part of the State's plan for disseminating FACIT while others were conducted at the request of specific schools or districts. All workshops provided an opportunity to field-test various FACIT products.

In addition to workshops and presentations, the project engaged in one other major activity that can be viewed as supporting the dissemination and diffusion of FACIT. This was the training and support of 13 demonstration teachers. These teachers, representing a variety of program areas and school settings, had participated in the development of the CDS individualization model and were thus familiar with many of the concepts they were to learn and demonstrate in the classroom. Some of these teachers later participated in FACIT awareness workshops, lending a great deal of credibility to the FACIT system of competency-based vocational education. They provided excellent testimonial evidence for the efficacy of the system.

## CHAPTER 4

## CONCLUSIONS

As a result of this research project, several conclusions seem warranted. First, there appears to be a commonly agreed-upon set of competencies seen as important in the individualization of competency-based instruction. Vocational teacher educators, administrators, and teachers have indicated a need for the competencies taught in FACIT. Of course, there is not unanimous agreement on the importance of all elements in FACIT, nor do all agree that FACIT includes everything that is important. What most people exposed to FACIT agree to is that it represents a minimum set of skills needed to individualize instruction in a competency-based setting.

Second, FACIT is a unique approach to competency-based vocational teacher education. FACIT contains elements of many different approaches to competency-based education, some of which have appeared in the published literature on the subject and many of which have been adapted from what vocational teachers are doing in the classroom. The claim that FACIT is unique, however, should not be interpreted as meaning that its developers claim it to be superior to other approaches. Rather it seems that FACIT provides a framework into which many other teaching skills can be included.

Finally, it can be concluded that FACIT is a system of competency-based, individualized instruction that provides a model for the teacher of the way the teacher is expected to teach. This has been noted as one of the strong points of the system. The system is seen as providing a practical and flexible set of guidelines designed to help vocational teachers from many program areas and school settings meet the needs of students with varying goals, interests, motivations, and abilities.

## CHAPTER 5

## RECOMMENDATIONS

The results and conclusions of this porject suggest three general recommendations. One relates to the flexible nature of the system and the varying requirements of implementing competency-based education. The needs of teachers with respect to implementing competency-based instruction vary with the teacher's abilities, interests, program area, and school setting, among other things. It would be unrealistic to expect that one set of instruction materials can provide teachers with all the skills they'll need in implementing competency-based curriculums. Therefore, it is recommended that teacher-education programs employ FACIT in a flexible manner, supplementing instruction with other competency-based teacher-training materials. Those developed by the Center for Vocational Education at Ohio State University would be an example. There are instances of overlap between FACIT and the Ohio State materials, but in general the two approaches treat teacher competencies at many different levels as well as emphasize different aspects of the teacher's job.

The second recommendation rests on the assumption that the present state of the art of competency-based vocational education will someday be obsolete, or at least outmoded in parts. This could come about because of changes in the laws governing vocational education, changes in the technology of instruction, or because of changes in the philosophy of vocational education. Whatever the cause, if the needs of competency-based vocational education change, there will have to be changes in FACIT to meet the new needs. A reasonable solution to this problem is to set up a FACIT Curriculum Development Center. Such a center would develop or coordinate the development of new FACIT components or materials for new teacher competencies. Naturally, cost would be the overriding factor influencing the feasibility of such a center; thus, ways of reducing operating costs should be explored. One approach would be to establish the center at an already existing curriculum-development operation. Another might be to "decentralize" the center and have various universities handle materials development and revision on a contractual basis. A centralized staff would coordinate and evaluate such an approach.

The last recommendation is based on the notion that an innovation cannot be properly evaluated until it is made fully operational. FACIT has never been fully implemented on a school-wide basis. Therefore, to evaluate FACIT as an approach to teacher training and as an approach to teaching, steps should be taken to document the implementation of FACIT on a school-wide basis. The establishment of demonstration schools would be one approach to fostering the required implementation. Of course, more "natural" approaches should also be explored.

## REFERENCES


Adams, R. Observational studies of teacher role. International Review of Education, 1972, 4, 243-260.

Daniel, K F. Performance-based teacher certification: What is it and why do we need it? Paper presented for a training program for teacher education leaders, May 1970, Miami Beach.

Elam, S. Performance-based teacher education. What is the state of the art? Washington, D.C.: American Association of Colleges for Teacher Education, 1971.

Florida Department of Education. The Florida program for improving the training, evaluation, and licensure of education personnel. Tallahassee: the Department, 1971.

Flynn, J., Chadwick, C., Fischler, A. A. An analysis of the role of the teacher in an innovative prototype school (Final Report, OE Contract #OEC-0-8-080421-4466). Washington, D.C.: Government Printing Office, 1969.

Golden, W. C. Career education in Florida. Tallahassee: Florida Department of Education, October, 1973.

Harrington, C. T., Johnson, B. F., Fagan, R. L., Freedman, S., & Reichman, S. Delivering competency-based vocational education: A teacher's guide to individualizing instruction. Tallahassee: State of Florida, 1976.

Houston, W. R., Jones, H. L., Howsam, R. B. Restructuring teacher education. University of Houston, August 1973.

Hyer, A. L. Effect of teacher role on the introduction of educational technology and media into schools. Washington, D.C.: National Education Association, 1972.

Joyce, B. R. Building the model of the teacher: Macro and micro strategies. Paper prepared for annual conference of the American Educational Research Association, New Orleans, 1973.

Lawson, T. E. Formative instructional product evaluation: Instruments & strategies. LC73-2236. 1974.

Magisos, J. H., & Stakelon, A. E., Comp. Individualization and modularization of vocational education instruction materials. Columbus, O.: Ohio State University, October 1975.

Rosenshine, B. PBTE: Proceed with caution. In Andrews, T. E., Ed., Performance education assessment. Multi-State Comsortium on Performance-Based Teacher Education, 1973.

Schalock, H. D. Closing the knowledge gap. CBTE programs as a focus and context. Research in education. A position paper of the Consortium of CBE Centers, March 1975.

Taba, H. Curriculum development: Theory and practice. New York: Harcourt, Brace & World, 1962.

Vocational-Technical Education Consortium of States. First progress report. Atlanta, Ga.: Southern Association of Colleges and Schools, March 1974.

APPENDIX A

FACIT COMPETENCIES AND OBJECTIVES

APPENDIX A

# FACIT COMPETENCIES AND OBJECTIVES

## COMPONENT: GOAL SETTING

Competency A: Identifying goal-related information and sources

Objective 1: Given descriptions of job-related and student-related information, the participant will identify the kind of information described. Seventy-five percent accuracy is required.

Objective 2: Given descriptions of job-related and student-related information, the participant will identify the appropriate source for obtaining the information described. Eighty percent accuracy is required.

Competency B: Helping students solve goal-setting problems

Objective 1: Given descriptions of goal-setting activities, the participant will identify the goal-setting step described. Eighty percent accuracy is required.

## COMPONENT: OBJECTIVES

Competency A: Selecting and sequencing objectives to best meet the student's instructional goals and needs in conjunction with the instructional requirements of selected objectives.

Objective 1: Given a description of a student's vocational goal and a list of objectives, the participant will be able to select the appropriate objectives to match the student's vocational goal. One hundred percent accuracy is required.

Objective 2: Given a list of objectives and a description of a student, including information on previous learning, weaknesses, and strengths, the participant will be able to select and sequence the objectives to meet the student's needs. One hundred percent accuracy is required.

Objective 3: Given a list of objectives in an occupational area, the participant will identify those objectives that belong together in an instructional sequence and then will order the objectives in an appropriate sequence. The participant's sequence will match the possible choices provided in the answer key.

Competency B: Analyzing objectives for instructional development

Objective 1: Given a series of questions on analyzing objectives, the participant will be able (1) to distinguish between the characteristics of a unit objective and those of an enabling objective and (2) to identify the reasons for breaking down unit-level objectives. Eighty percent accuracy is required.

Objective 2: Given a unit-level objective, the participant will be able to break down the objective into its must-know and must-do enablers. The participant's statements must reflect the same content as that which is presented in the model answer. No more than one discrepancy in the must-know category and no more than one in the must-do category may occur.

Objective 3: Given student descriptions and a unit-level objective that is broken into its must-know components, the participant will be able to select the most appropriate combination of enablers to make up a learning experience for each student. One hundred percent accuracy is required.

Competency C: Writing instructionally complete objectives

Objective 1: Given a written description that includes all of the necessary information about a situation, the participant will write an objective. The objective will include a statement of the conditions, the performance, and the criterion. Each of these parts must be appropriate for the situation described.

Competency D: Validating course objectives

Objective 1: Using available resources, the participant will obtain and validate objectives from his or her vocational area. The participant will then make correct decisions concerning whether these objectives should be included in the course

of instruction. The objectives must be validated by at least two of three suggested methods, and the conclusions must be consistent with the information gathered during the validation process.

COMPONENT: CRITERION-REFERENCED TESTING

Competency A: Using criterion-referenced pretests and posttests to determine an individual's instructional needs

Objective 1: Given a list of statements about pretests and posttests, the participant will identify a pretest and a posttest, when to administer each, and how to interpret the results. Eighty percent accuracy is required.

Objective 2: Given descriptions of two instructional situations involving student performance on criterion-referenced pretests, the participant will select appropriate instructional decisions based on the student's performance on the pretest. One hundred percent accuracy is required.

Objective 3: Given descriptions of two instructional situations involving student performance on criterion-referenced posttests, the participant will select appropriate instructional decisions based on the student's performance on the posttest. One hundred percent accuracy is required.

Competency B: Determining the appropriate types of tests to use

Objective 1: Given five objectives, the participant will determine whether to use a written test or a performance test to assess mastery of each objective. One hundred percent accuracy is required.

Objective 2: Given five objectives to be measured by written test items, the participant will determine, for each objective, whether selection or supply items should be used or whether either type of item can be used. Eighty percent accuracy is required.

Objective 3: Given five objectives requiring a performance test, the participant will identify those objectives that should be assessed with rating scales and those objectives that should be assessed with checklists. Eighty percent accuracy is required.

Competency C: Identifying the testing requirements of specific objectives

Objective 1: Given a description of a testing situation including a must-know (information) objective, the participant will determine the number of items to include on a criterion-referenced test and will provide a rationale for that decision. The number of items selected must be acceptable and must be clearly justified by the rationale.

Objective 2: Given a description of a situation including a must-do (performance) objective, the participant will determine how many times performance should be demonstrated on a criterion-referenced test and will provide a rationale for that decision. The number of times decided upon must be acceptable and must be clearly justified by the rationale.

Objective 3: Given a description of situations that use written and performance tests to assess student mastery, the participant will determine the most appropriate criterion or standard to set for each situation and will provide a rationale for that decision. The criterion must be acceptable and must be clearly justified by the rationale.

Competency D: Developing performance-rating methods

Objective 1: Given two objectives, along with the must-do components for each objective, the participant will develop a checklist and a rating scale for the appropriate objective. The checklist and rating scale must reflect the content and format presented in the answer key.

Competency E: Constructing multiple-choice, true-false, and matching test items

Objective 1: Given access to objectives requiring written test items, the participant will be able to write multiple-choice items used to assess students' knowledge. Each item must receive a yes for all questions on the checklist provided.

Objective 2: Given access to objectives requiring written test items, the participant will be able to write true-false items used to assess students' knowledge. Each item must receive a yes for all questions on the checklist provided.

Objective 3: Given access to objectives requiring written test items, the participant will be able to write matching items used to assess students' knowledge. Each item must receive a yes for all questions on the checklist provided.

Competency F: Constructing completion, short-answer, and essay test items

Objective 1: Given access to objectives that require written test items, the participant will write completion items to assess the students' knowledge. Each item must receive a yes for all questions on the checklist provided.

Objective 2: Given access to objectives that require written test items, the participant will write short-answer or essay items to assess the students' knowledge. Each item must receive a yes for all items on the checklist provided.

COMPONENT: LEARNING EXPERIENCES

Competency A: Determining the use of and defining the functions of instruction

Objective 1: Without any references, the participant will explain, in writing, the three main uses of the functions of instruction. Answers should reflect the points presented in the answer key.

Objective 2: Given a list of the functions of instruction, the participant will briefly define each function, give a general example of each, and then give an example specific to the participant's occupational area. Responses should be similar to those in the answer key.

Competency B: Identifying instructional requirements of the task and the implications for the functions of instruction.

Objective 1: Given several descriptions of tasks and a Task-Characteristics--Functions-of-Instruction Table, the participant will select the functions of instruction that need to be given special attention

based on the task characteristics evident in the descriptions. Eighty percent accuracy is required for the overall test and no more than one function of instruction may be missed per item.

Competency C: Identifying learner characteristics and matching them with the functions of instruction

Objective 1: Given a student case study, including the Student Preference Questionnaire, the participant will identify all the relevant student characteristics using the Student Characteristics Checklist. The responses should match those given on the answer key.

Objective 2: Given a list of characteristics describing a student, the completed Student Characteristics Checklist, and the completed Student Preference Questionnaire, the participant will select, from a choice of two, one activity appropriate for the student for each function of instruction. Eighty percent accuracy is required.

Competency D: Planning instruction for the task and the learner

Objective 1: Given a completed Task Information and Planning Sheet and a list of a student's characteristics, the participant will select from two learning activities the learning activity most appropriate for the task and the learner for each function of instruction. Eighty percent accuracy is required.

Competency E: Choosing media appropriate for the functions of instruction

Objective 1: Given descriptions of advantages and uses of each media category, the participant will match each description with the appropriate media category. Seventy-five percent accuracy is required.

Objective 2: Given a series of descriptions of situations in which media were chosen improperly, the participant will identify the factor that the instructor failed to consider in choosing the media. Eighty percent accuracy is required.

Competency F: Reviewing and selecting instructional materials

Objective 1: Given a Materials Review Chart, a description of instructional materials with objectives, and a classroom population description, the participant will review and criticize the materials using the Materials Review Chart. The participant's critique will match the answer key.

Competency G: Adapting instructional materials to meet the needs of the learner and the requirements of the task

Objectives: none

Competency H: Developing strategies for pacing

Objective 1: Given five descriptions of pacing modes, the participant will be able to identify each description as an example of instructor pacing, student pacing, instructor-student pacing, or student-proctor pacing. Eighty percent accuracy is required.

Objective 2: Given two descriptions of instructional situations requiring pacing decisions, the participant will be able to select appropriate pacing decisions for each situation. Participant's choices must agree with the model answers provided.

Objective 3: Given four descriptions of students with pacing problems, the participant will select a strategy for changing each student's pace. Answers must match those given in the answer key.

Competency I: Developing strategies for tutoring

Objective 1: Given a series of questions related to the tutoring process, the participant will be able to identify the uses of the two main approaches to tutoring and also the benefits and instructional functions that tutoring provides. Eighty percent accuracy is required.

Objective 2: Given a sample situation involving the selection of a tutor for a specific learner, the participant will select the most appropriate tutoring option available. One hundred percent accuracy is required.

Objective 3: Given a series of descriptions of situations in which tutors have been given inadequate support or training, the participant will identify the types of support that should have been provided in each situation. Ninety percent accuracy is required.

Competency J: Developing strategies for flexible grouping

Objective 1: Given descriptions of different group situations, the participant will determine whether each situation represents an appropriate or inappropriate use of grouping. Eighty percent accuracy is required.

Objective 2: Given a series of descriptions of situations in which flexible instructional groups have been given inadequate support, the participant will identify the type of support that should have been provided in each situation. Eighty percent accuracy is required.

COMPONENT: EVALUATION

Competency A: Determining the purpose and scope of evaluation

Objective 1: Given five statements about the definition and purpose of evaluation, the participant will determine whether each statement is true or false. Eighty percent accuracy is required.

Objective 2: Given five sample situations involving evaluation, student follow-up, assessment, and the varying of instruction for individual students, the participant will be able to identify the type of activity described in each situation. Eighty percent accuracy is required.

Competency B: Collecting and analyzing information and making evaluation decisions

Objective 1: Given descriptions of five instructional situations requiring major evaluation decisions, the participant will be able to make the appropriate decision for each situation. Eighty percent accuracy is required.



Competency C: Obtaining and using follow-up information

Objective 1: Given descriptions of five situations that include follow-up information, the participant will make the appropriate evaluation decision for each. Eighty percent accuracy is required.

COMPONENT: INSTRUCTIONAL MANAGEMENT

Participant's Guide
Filmstrip Overview

Competency A: Keeping records on students' progress and performance

Objectives: none

Competency B: Determining the need for instructional resources and monitoring this use.

Objectives: none

Competency C: Allocating instructional resources for student use

Objectives: none

Competency D: Utilizing student proctors and aides in managing instruction

Objectives: none

Competency E: Determining grades in a competency-based system

Objective 1: Given five statements about grading in a competency-based system, the participant will determine whether each statement is true or false. Eighty percent accuracy is required.

Objective 2: Given ten statements describing various grading systems, the participant will identify the grading techniques described. Eighty percent accuracy is required.

Competency F: Organizing student, course, and resource records

Objectives: none

# APPENDIX B

# MATERIALS REVIEWED IN THE DEVELOPMENT OF FACIT

Compiled by Marsha Paddock and Kay Everall
Curriculum Development Information Service
Information Services Division


Aaron, Shirley. Personalized Instruction for the Middle School Learner: The Instructional Role of the School Media Specialist. Final Report. Tallahassee, Florida: Florida State University, Career Education Center, August 27, 1975. (ED 115 276)

Addendum: Florida Catalog of Competency Based Teacher Training Materials. Tallahassee, Florida: Florida State Department of Education, 1975. (Available from Panhandle Area Educational Cooperative, Post Office Drawer 190, Chipley, FL 32428)

(Adult Education Act) Replication Guide. Butte, Montana: Butte, Vocational Technical Center, 1975. (ED 109 493)

Aides to Career Education: Career Advisor Handbook. Los Angeles, California: Los Angeles City Schools, Career Education Services Unit, 1975. (ED 120 418)

Airasian, Peter W. "Evaluation for Measuring, for Diagnosis." Improving College and University Teaching 22 (Autumn 1974): 213-214. (EJ 107 588)

Aleamoni, Lawrence M. Evaluation by Students to Identify General Instructional Problems. Urbana, Illinois: Illinois University, Office of Instructional Resources, 1973. (ED 076 166)

Allan, Richard G. Writing Behavioral Objectives for Occupational Education: A Programmed Text: Appendix I. Final Report. Amherst, Massachusetts: University of Massachusetts, Center for Occupational Education, 1972. (ED 097 418)

Alvir, Howard P. Applying Mastery Learning in the Classroom. December 1975. (ED 113 352)

_____. Saving Educational Dollars Through Quality Objectives. (ED 115 584)





Balder, Eva L. Discipline in the Classroom. Los Angeles, California: Vincet Associates, 1969. (Multimedia kit)

Baldwin, James, and Kinsel, John B. Summary of Student Course Evaluation for The Year 1974-75. Report No. 18. Hempstead, New York: Hofstra University, Educational Research Office. June 1975. (ED 118 000)

Banville, Thomas. "23 Ways to Modify Behavior." Instructor 84 (November 1974): 94-95.

Barker, Charles; Fallow, W. Dole; and Greene, Mark. A Measure of Attainment: Evaluation Techniques, The Manzanita Curriculum Design Project. Portland, Oregon: Northwest Regional Educational Laboratory, September 1973.

Barkley, Margaret V. "To Grade or Not to Grade." Illinois Teacher of Home Economics 38 (March/April 1975): 201-203. (EJ 113 820)

Behavior Modification and Control. San Jose, California: Lansford Publishing Co., 1973. (Transparency kit)

Behavior Modification for High Schools. North Hollywood, California: Career Aids. (Multimedia kit)

Bjorkquist, David. What Vocational Education Teachers Should Know About Individualizing Instruction. Columbus, Ohio: The Ohio State University, Center for Vocational and Technical Education, 1971. (ED 057 184)

Blankenburg, Richard M. "A Student Initiated Tutoring Techniques Course." Improving College and University Teaching 19 (Fall 1971): 295-296. (EJ 050 586)

Boehm, Ann E. "Criterion-Referenced Assessment for the Teacher." Teachers College Record 75 (September 1973): 117-126. (EJ 104 975)

Book, Cassandra. "Selected Approaches To Speech Communication Evaluation; A Symposium: Contract Grading in the Interpersonal Communication Course." Speech Teacher 24 (March 1975): 133-138. (EJ 122 455)

Boston, Robert E. How to Write and Use Performance Objectives to Individualize Instruction. 4 vols. Englewood Cliffs, New Jersey: Educational Technology Publications, 1972.

Bouchillon, Pat, and Bouchillon, Bill. "Students Learn by Tutoring." Contemporary Education 43 (April 1972): 281-283. (EJ 056 880)

Boyd, Joseph L., and Shimberg, Benjamin. Handbook of Performance Testing; a Practical Guide for Test Makers. Princeton, New Jersey: Educational Testing Service, January 1971.

Brown, Donald E. Goals and Guidelines for Alvin Community College Free Studies. Alvin, Texas: Alvin Community College, n.d. (ED 121 372)

Brownfield, Dana; Kohly, Mary; and Wilkins, Jerry. "Moving Toward a More Open Education." Oregon ASCD Curriculum Bulletin 28 (May 1974). (ED 091 818)

Buckley, Nancy K., and Walder, Hill M. Modifying Classroom Behavior: A Manual of Procedure for Classroom Teachers. Champaign, Illinois: Research Press 1970.

Burger, Laura J., and Lambrecht, Judith J. Handbook for Vocational Instructors Interested in Competency-Based Education. Minneapolis, Minnesota: University of Minnesota, Minnesota Research Coordinating Unit for Vocational Education, 1974. (ED 118 979)

Burton, Joseph C., and Wilson, Patsy. Career Decision-Making Guide for Adult Basic Education Teachers. Huntsville, Alabama: Huntsville City Schools, 1975.

Bushnell, David S., and Rappaport, Donald. Planned Change in Education: A Systems Approach. New York City, New York: Harcourt Brace Jovanovich, 1971.

Butler, F. Coit. Instructional Systems Development for Vocational and Technical Training. Englewood Cliffs, New Jersey: Educational Technology Publications, 1972.

CCBC Notebook: The Competency Based Curriculum 6 (October 1976).

Calhoun, James F. Elementary Analysis of the Keller Method of Instruction. 1973. (ED 088 382)

Campbell, Donald, and Wells, Patricia A. "Lecture and Interaction = Effective Teaching." Journal of Business Education 50 (November 1974): 70-72. (EJ 106 993)

Campbell, Robert E., and others. The Systems Approach: An Emerging Behavioral Model for Vocational Guidance. A Summary Report. Columbus, Ohio: The Ohio State University, Center for Vocational and Technical Education, January 1971.

Career Development for the Intermediate Level. Chicago, Illinois: Chicago Board of Education, 1974. (ED 105 220)

Career Development for the Upper Grades. Chicago, Illinois: Chicago Board of Education, 1974. (ED 105 221)

Career Guidance: An In-Service Course Developed Under Section 211 of the Appalachian Regional Development Act. 1975. (ED 118 909)

Career Guidance Handbook. Montgomery, Alabama: Alabama State Department of Education, Division of Vocational Education and Community Colleges, 1973. (ED 117 534)

Cember, Esther, and Tarkan, Myrna. School and Community Service: The Tutor's Handbook. Spring Valley, New York: Rampo Central School District 2, June 30, 1973. (ED 103 350)

Champagne, David W., and Goldman, Richard M. Handbook for Managing Individualized Learning in the Classroom. Englewood Cliffs, New Jersey: Educational Technology Publications, 1975.

Cheek, Earl. Field-Based Teacher Education in Reading and Language Arts. May 1974. (ED 094 318)

Clark, D. Cecil. A Prescriptive Model of Development or Evaluation: Some Needed Maturity. Portland, Oregon: Northwest Regional Educational Laboratory, March 1975.

Classroom Management and Discipline. Individualized Performance-Based Teacher Education Program, Wilkit no. 4. Ogden, Utah: Weber State College, School of Education, 1972.

Coordinated Effort for Career Education. Interim Report. Sherman/Denison, Texas: Grayson County College, July 1, 1975. (ED 112 201)

Corbett, Sara T., and Davis, Mary Alice. "Individualized Multi-Media Instruction." Journal of Business Education 49 (January 1974): 149-150. (EJ 090 786)

Cron, C. Thomas. A Career Education Counseling Project. Interim Report. Corpus Christi, Texas: Corpus Christi Independent School District, August 1975. (ED 118 785)

Current Trends in School Policies and Programs: Evaluating Teachers for Professional Growth. Education U.S.A. Special Report. Arlington, Virginia: National School Public Relations Association, 1974.

Curriculum, Demonstration, and Installation Studies: Information Sources - BB25. Columbus, Ohio: The Ohio State University, Center for Vocational and Technical Education, October 1974.

"Curriculum: Peer Tutoring; Son of CAI." Nation's Schools and Colleges 1 (September 1974): 15-16. (EJ 105 864)

Danielson, Milton G., and others. A Verified Vocational Counseling Model. October 1973. (ED 087 958)

DeLucca, Joan. Material Selection: B-1 Evaluating and Selecting Learning Materials, Document No. 10d. Rev. Independent Study Training Material for Professional Supervisory Competencies. Austin, Texas: The University of Texas at Austin, Special Education Supervisor Training Project, 1975. (ED 120 986)

Designing Effective Instruction. Palo Alto, California: General Programmed Teaching, 1970. (Multi-media kit)

Designs for Individualization. New York City, New York: Westinghouse Learning Corp., 1975. (Multi-media kit)

Determining Student Grades. Portland, Oregon: Belmont Films, 1960. (Filmstrip)

Developing Performance Objectives. Tallahassee, Florida: Florida State Department of Education, Division of Vocational, Technical and Adult Education, 1970.

Development of a Pilot Career Cluster Curriculum for all Students in a College Preparatory Oriented High School. Final Report. Part 1: Curriculum Development. Rockville, Maryland: Montgomery County Public Schools, July 31, 1973. (ED 084 377)

Dick, Walter, and Hagerty, Nancy. Topics in Measurement: Reliability and Validity. New York City, New York: McGraw-Hill Book Company, 1971.

Dillman, Caroline Matheny, and Rahmlow, Harold F. Writing Instructional Objectives. Belmont, California: Fearon Publishers, 1972.

Directory of Task Inventories. 2 vols. Columbus Ohio: The Ohio State University, Center for Vocational Education, 1975.

Dixon, Frank F. Objective-Based Career Guidance Program, ESEA, Title III Project. End of the Year Report. Las Vegas, Nevada: Clark County School District, August 1973. (ED 103 748)

Dunn, Dennis J. Comparison of the JEVS, Singer/Graflex and TOWER Work Evaluation Systems. Reprint Series no. 5. Stout, Menomonie, Wisconsin: University of Wisconsin, Materials Development Center, December 1971. (ED 102 305)

Dunn, James A., and others. Individualization of Education in Career Education. Final Report. Pala Alto, California: American Institute for Research in the Behavioral Sciences, 1972. (ED 072 256)

Dunn, Rita, and Dunn, Kenneth. Educators Self-Teaching Guide to Individualizing Instructional Programs. West Nyack, New York: Parker Publishing Co., 1975.

Ebel, Robert L. Essentials of Educational Measurement. Englewood Cliffs, New Jersey: Prentice-Hall, 1972.

Edsall, Richard H. A Guide for Local Program Evaluation. Columbus, Ohio: The Ohio State University, Center for Vocational and Technical Education, 1973.

Educational Media. Washington, D.C.: National Educational Association, 1969. (Filmstrip)

Educational Technology 13 (May 1973).

The Educational Technology Cartoon Book. Englewood Cliffs, New Jersey: Educational Technology Publications, 1970.

Edwards, K. Anthony. The Student as Teacher. May 10, 1972. (ED 066 032)

Elementary Grades Program on Industry. Stout, Menomonie, Wisconsin: University of Wisconsin, Center for Vocational, Technical and Adult Education, n.d. (ED 111 997)

Epstein, Jerome. How to Teach Tasks, Skills and Concepts. North Hollywood, California: Career Aids. (Filmstrip and cassette)

Erickson, Carlton W. H., and Curl, David H. Fundamentals of Teaching with Audiovisual Technology. 2d ed. New York City, New York: Macmillan Publishing Company, 1972.

Evaluation Design: New York State Consortium for Career Education. New York City, New York: Educational Research Council of America, September 1975.

Evaluation Service Center for Occupational Education. Final Report. Amherst, Massachusetts: University of Massachusetts, Center for Occupational Education, 1972. (ED 085 541)

Finding and Getting a Job. Chicago, Illinois: SVE-Society for Visual Education, 1974. (Multimedia kit)

Fitzpatrick, Mildred. The Classroom Aide. New Mexico Western States Small School Project. Santa Fe, New Mexico: New Mexico State Department of Education, November 1965. (ED 020 837)

Florida Catalog of Competency Based Teacher Training Materials. Tallahassee, Florida: Florida State Department of Education, 1973. (Available from Panhandle Area Educational Cooperative (PAEC), Post Office Drawer 190, Chipley, FL 32428.)

Florida Competency Based Materials Catalog. Tallahassee, Florida: Florida State Department of Education, 1976. (Available from Panhandle Area Educational Cooperative (PAEC), Post Office Drawer 190, Chipley, FL 32428.)

Florida Competency Based Teacher Education Modules. Tallahassee, Florida: Florida Department of Education. These modules are available from Panhandle Area Educational Cooperative (PAEC), Post Office Drawer 190, Chipley, FL 32428.

Cluster II: Planning Skills for Teachers. May 1970.
- Module II-01 Using Behavioral Objectives.
- Module II-05 Selecting Commercial Materials.

Cluster IV: Classroom Procedures. May 1970.
- Module IV-04 Achieving Closure.
- Module IV-06 Classroom Management.
- Module IV-07 Recognizing and Obtaining Attending Behavior.

Cluster IX: School Volunteer Program.
- Module IX-01 Administering a School Volunteer Program. June 1971. Audiotapes: Administering a School Volunteer Program, Module Mania, and Modules in Action. Filmstrips: Module Mania and Modules in Action.
- Module IX-06 Assisting in the Classroom. June 1971.
- Module IX-08 Orientation for Developing a Volunteer Program. June 1972.
- Module IX-10 Using Positive Approach Teaching in the Classroom. June 1972. Audiotape: Using Positive Approach Teaching in the Classroom.
- Module IX-14 Student Tutoring Program, Minipak II: Prescription Writing. June, 1972.
- Module IX-15 Student Tutoring Program, Minipak III: Planning and Implementing Student Tutoring Program. June 1972. Audiotapes: Administering a Student Tutoring Program.

Module IX-16 Student Tutoring Program Minipak IV: Tutor Training and Post Assessment. June 1972. Book: Tutorial Manager's Guide for Training Tutors. October 1971.
Module IX-17 Handbook for Tutorial Programs. June 1972.
Cluster OS: Occupational Specialist Program. July 1973.
Module OS-01 Training Manual for Occupational Specialist Program.
Module OS-02 Community Resources.
Module OS-03 Communication Skills.
Module OS-04 Using the Occupational Outlook Handbook in Vocational Guidance.
Module OS-05 Developing and Maintaining Career Information. Audio tape: Occupational Filing Systems.
Module OS-06 Apprenticeship Programs.
Module OS-07 Decision Making.
Module OS-08 Using Tests in Vocational Counseling and Guidance. Audio tapes: Enabling Element 1, Test and Measurement Terminology and Enabling Element 2, Basic Quantitative Concepts Used in Testing.
Module OS-09 Identification of the Potential and Actual Early School Learner.
Module OS-10 Identifying and Securing Job Placements.
Module OS-11 Follow-up of Job Placements.
Module OS-12 Career Education.
Module OS-13 Development of a Career Education Lesson Plan.
Module OS-14 Audio Visual Aids.
Module OS-15 Assessing Career Guidance Service. Audiotapes: Accountability: What, Why, Where, How? and Pitfalls and Priorities in Guidance Program Evaluation.
Module OS-16 Follow-up Studies. Audiotape: "Follow-Up Studies".
Module OS-17 Values in Vocational Decision Making.

Foster, Dennis R., and Alderman, M. Day. "A Student-Centered Course Evaluation Form." College Student Journal 8 (February/March 1974): 55-57. (EJ 103 859)

Gagné, Robert M. Essentials of Learning for Instruction. Hinsdale, Illinois: Dryden Press, 1974.

Ganschow, Laurie H., and others. Practical Career Guidance Counseling, and Placement for the Non-College-Bound Student: A Review of the Literature. Palo Alto, California: American Institutes for Research in the Behavioral Sciences, June 1973. (ED 080 919)

Garvey, James, and Brautigam, Richard. Writing Objectives for Improved Instruction. North Hollywood, California: Career Aids, 1972. (Multimedia kit)

George, Paul S. "Good Discipline Through Contingency Management." The Clearinghouse 48 (November 1973): 145-149.

Gerlach, Vernon S., and Ely, Donald P. Teaching and Media: A Systematic Approach. Englewood Cliffs, New Jersey: Prentice-Hall, 1971.

Gillmore, G. M. A Brief Description of the Student Rating Forms of the University of Washington Instructional Assessment System. Project 276. Seattle, Washington: University of Washington, Educational Assessment Center, November 1974. (ED 117 122)

Girod, Gerald R. Writing and Assessing Attitudinal Objectives. Columbus, Ohio: Charles E. Merrill Publishing Co., 1973.

Gliessman, David H., and Ingersoll, Gary M. "Educational Psychology and the Instructional Media." Viewpoints 50 (November 1974): 21-36.

Goldschmid, Barbara, and Goldschmid, Marcel L. "Peer Teaching in Higher Education: A Review." Higher Education 5 (February 1976): 9-33. (EJ 132 843)

Goodman, Leonard H., and Garrett, Anne E. A "Starter" File of Free Occupational Literature. Washington, D.C.: B'nai B'rith, Vocational Service, 1975. (ED 109 553)

Gronlund, Norman E. Preparing Criterion-Referenced Tests for Classroom Instruction. Current Topics in Classroom Instruction. New York City, New York: Macmillan Co., 1973.

Gropper, George L., and Glasgow, Zita. Criteria for the Selection and Use of Visuals in Instruction. Englewood Cliffs, New Jersey: Educational Technology Publications, 1971.

A Guide for Establishing a Learning Laboratory: Adult Basic Education. White Plains, New York: White Plains Public Schools, Adult Basic Education, May 1969. (ED 030 825)

Guidelines for the Establishment of Career Information Centers. Hayward, California: Alameda County School Department, 1972. (ED 074 239)

Gustafson, Richard A., and others. Educator's Handbook for Secondary Career Guidance Programs: New Hampshire Guidelines. Concord, New Hampshire: New Hampshire Research Coordinating Unit for Vocational-Technical Education, 1975. (ED 118 888)

Handbook of Successful School Administration. Englewood Cliffs, New Jersey: Prentice-Hall, 1974.

Hansen, W. Lee, and Kelley, Allen C. "Political Economy of Course Evaluations." Journal of Economic Education 5 (Fall 1973): 10-21. (EJ 090 241)

Harris-Bowlsbey, JoAnn, and others. Structure and Technology for Facilitating Human Development Through Career Education. DeKalb, Illinois: Northern Illinois University, ERIC Clearinghouse in Career Education, December 12, 1975. (ED 115 740)

Hickey, M. E., and Hoffman, David H. "Diagnosis and Prescription in Education." Educational Technology 13 (October 1973): 35-37. (EJ 087 926)

Hidlebaugh, Everett. Small Group Instruction. August 1971. (ED 100 931)

Homme, Lloyd, and others. How to Use Contingency Contracting in the Classroom. Champaign, Illinois: Research Press, 1970.

Howes, Virgil M. Individualization of Instruction: A Teaching Strategy. New York City, New York: Macmillan Publishing Co., 1970.

Hunt, David E. Learning Styles and Teaching Strategies. November 21, 1972. (ED 075 275)

Individualized Instruction: Selected Elements, Programs, and Instructional Materials. Austin, Texas: Texas Information Service, 1972. (ED 085 135)

Infusion Handbook for Counselors. Landing, Michigan: Michigan Department of Education, n.d.

Instructional Resources: Evaluation, Selection and Utilization. Individualized Performance-Based Teacher Education Program, Wilkit no. 20. Ogden, Utah: Weber State College, School of Education, 1975.

Iwanicki, Edward F., and Madaus, George F. An Empirical Study of the Contribution of Behavioral Objectives to Teaching and Learning. Chicago, Illinois: American Educational Research Association, 1974. (ED 094 003)

Johnson, Norbert, and McDaniel, Joe, eds. Handbook for Vocational Counselors. Jackson, Mississippi: Mississippi State College, Research Coordinating Unit for Vocational-Technical Education; Mississippi State Department of Education, Division of Vocational and Technical Education, 1973. (ED 108 018)

Johnson, Stuart R., and Johnson, Rita B. Developing Individualized Instructional Materials: A Self-Instructional Material in Itself. Palo Alto, California: Westinghouse Learning Press, 1970.

Kaisershot, Alfred L. "Contracting for Grades." Journal of Businesss Education 50 (December 1974): 120-121. (EJ 110 428)

Knirk, Frederick G., and Childs, John W. Instructional Technology: A Book of Readings. New York City, New York: Holt, Rinehart and Winston, 1968.

Kohn, James J., and Vajda, Peter G. "Pre-mediated Instruction and Small-Group Interaction in the ESL Classroom." TESOL Quarterly 9 (December 1975): 379-390. (EJ 131 093)

Language Arts, Business Communication, and Career Planning. New York City, New York: National Council of Negro Women, 1975. (ED 115 775)

Larson, Lila M. Career Awareness and Exploration: A New Approach to Career Counseling. June 4, 1975. (ED 119 098)

Learning Center Ideas in Action: A How-To Handbook for Starting an Individualized Adult Learning Center. Los Angeles, California: Los Angeles City Schools, Division of Career and Continuing Education, 1975. (ED 094 236)

Learning with Today's Media. Chicago, Illinois: Encyclopedia Britannica Educational Corporation, 1974. (Film)

Lewis, William E., and others. Precision Measuring Equipment (PME): Individualized Instruction. Final Report. Brooks AFB, Texas: U.S. Department of the Air Force, Human Resources Laboratory, August 1974. (ED 097 874)

Lynch, William W. "Psychological Aspects of the Interactive Instructional Skills of Teachers." Viewpoints 50 (November 1974): 1-19. (EJ 108 364)

McKenna, Bernard H. "A Context for Teacher Evaluation." National Elementary Principal 52 (February 1973): 18-23. (EJ 077 761)

McNutt, Larry. Career Education Curriculum Guideline: A Plan of Student Development Grades K-9. Richmond, Vermont: Franklin Northeast Supervisory Union, n.d. (ED 094 180)

Mager, Robert F. Measuring Instructional Intent; or Got a Match? Belmont, California: Fearon Publishers, 1973.

Mager, Robert F., and Beach, Kenneth M. Developing Vocational Instruction. Belmont, California: Fearon Publishers, 1967.

Mager, Robert F., and Pipe, Peter. CRI Criterion-Referenced Instruction: Analysis, Design and Implementation. Los Altos Hills, California: Mager Associates, 1974. (Multimedia kit)

Magisos, Joel H., and Stakelon, Anne E. Individualization and Modularization of Vocational Education Instructional Materials: An Annotated Bibliography of Publications and Projects. Columbus, Ohio: The Ohio State University, Center for Vocational Education, October 1975.

Merrill, M. David. Learner Control: Beyond Aptitude Treatment Interactions. Draft Copy. Stanford, California: Stanford University, ERIC Clearinghouse on Information Resources, March 20, 1974. (ED 095 822)

Miller, John P. Humanizing the Classroom: Models of Teaching in Affective Education. New York: Praeger Publishers, 1976.

Mills, Helen. A Do-It-Yourself Kit for Individualized Instruction. (ED 064 730)

Moffett, Phillip, ed. 18 Almanac: A Handbook for Leaving High School. Knoxville, Tennessee: Approach 13-30 Corp., 1973-4.

Monasmith, James. Writing Behavioral Objectives. Learning Package No. 1. (ED 100 914)

Motivation and Learning. Individualized Performance-Based Teacher Education Program, Wilkit no. 13. Ogden, Utah: Weber State College, School of Education, 1974.

Murray, Stephen L., and Smith, Nick L. The Administrator-Researcher Interaction: The Conduct of Cooperative Research. Portland, Oregon: Northwest Regional Educational Laboratory, September 1974.

Nagel, Thomas S., and Richman, Paul T. Instructional Objectives. Competency-Based Teacher Education. San Diego, California: San Diego State University, School of Education, Spring 1973.

Nagel, Thomas S., Richman, Paul T., and Smith, Hayden R. Competency-Based Instruction. Competency-Based Teacher Education. San Diego, California: San Diego State University, School of Education, 1974.

Nagel, Thomas S.; Richman, Paul T.; and Smith, Hayden R. Evaluation Procedures in Competency-Based Programs. Competency-Based Teacher Education. San Diego, California: San Diego State University, School of Education, 1973.

Nagel, Thomas S.; Smith, Hayden R.; and Treadwell, Peter J. Developing, Implementing, and Evaluating a Competency-Based Instructional Module. Competency-Based Teacher Education. San Diego, California: San Diego State University, School of Education, 1974.

Nault, Richard, and Hallinan, Maureen. "High School Pass/Fail Marking Plans: An Analysis of their Implementation." The High School Journal 58 January 1975): 113-121. (EJ 111 852)

Newcomb, L. H. "Here We Go Again - Grades! Grades! Grades!" Agriculture Education Magazine 45 (March 1973): 200, 207. (EJ 069 728)

Olson, Levene R. Notes on Curriculum Development and Sample Career Education Modules. Huntington, West Virginia: Marshall University, Department of Occupational and Adult Education, 1974. (ED 105 175)

Olsen, Turee. "ERIC/RCS." Reading Teacher 27 (February 1974): 506-508. (EJ 091 181)

Otto, David. Pass-Fail Grading Systems: A Literature Review. Edmonton, Alberta: Alberta University, Office of Institutional Research and Planning, 1973. (ED 109 209)

Overview of Teaching Skills for Elementary and Secondary School Learning. Morristown, New Jersey: General Learning Corporation. (Film)

Owens, Thomas R.; Haenn, Joseph F.; and Fehrenbacher, Harry L. The Use of Multiple Strategies in the Evaluation of Experience-Based Career Education. Portland, Oregon: Northwest Regional Educational Laboratory, September 1976.

Panyan, Marion C., and Patterson, Earl T. "Teaching Attendants the Applied Aspects of Behavior Modification." Mental Retardation 12 (October 1974): 30-34.

Parsons, Jerry, and others. "Criteria for Selecting, Evaluating or Developing Learning Modules." Educational Technology 16 (February 1976): 31-32.

Patterson, Herman F. "Teaching the Income Statement." Business Education Forum 28 (October 1973): 27-28. (EJ 103 730)

Pedrini, Bonnie C., and Pedrini, D. T. Pass/Fail Grading: Summary and Tentative Conclusions. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1972. (ED 080 073)

Performance Objectives Development Project. Lansing, Michigan: Michigan State Department of Education, Vocational Education and Career Development Service, 1974. (ED 105 246)

Perlstein, Marcia H. Flowers Can Even Bloom in Schools: Selected Readings in Educational Psychology. Sunnyvale, California: Westinghouse Learning Press, 1974.

Perry, Devern. "Meeting Student Needs: Individual Progress in Shorthand." Business Education World 54 (March/April 1974): 5-7. (EJ 092 321)

Peter, Laurence J. Competencies for Teaching Classroom Instruction. 4 vols. Belmont, California: Wadsworth Publishing Co., 1975.

Pipe, Peter. Objectives -- Tool In Change. Belmont, California: Fearon Publishers, 1973

Planning and Operating Media Centers: Readings from "Audiovisual Instruction"-2. Washington, D.C.: Association for Educational Communications and Technology, 1975.

Popham, W. James. Alternative Measurement Tactics for Educational Evaluation. Los Angeles, California: Vimcet Associates, 1971. (Multimedia kit)

_____. An Evaluation Guidebook: A Set of Practical Guidelines for the Educational Evaluator. Los Angeles, California: Instructional Objectives Exchange, 1972.

_____. Deciding on Defensible Goals Via Educational Needs Assessment. Los Angeles, California: Vimcet Associates, 1971. (Multimedia kit)

Price, Nelson C. Developing Performance Objectives. Redwood City, California: San Mateo County Superintendent of Schools, 1973. (ED 093 061)

Principles of Reinforcement. Individualized Performance-Based Teacher Education Program, Wilkit no. 7. Ogden, Utah: Weber State College, School of Education, 1975.

The Proceedings of the Second National Conference on Research and Technology in College and University Teaching. Atlanta, Georgia: Georgia State University, November 1974.

Randolph, Daniel Lee, and Grantham, Larry B. "A Behavior Management Approach vs. a Traditional Approach to Career Education." Vocational Guidance Quarterly 21 (June 1973): 293-297.

Reti, P. G. "Some Guidelines on the Classroom Use of Performance Objectives." Programmed Learning and Educational Technology 12 (January 1975): 29-33. (EJ 117 922)

Richter, David J. Occupational Essentials, Skills, and Attitudes for Employment. 3d. ed. Rockford, Illinois: H. C. Johnson Press, 1975.

Robeck, Mildred C. Social Science - How the Anthropologist Studies Man: Chumash Indians; a Resource Guide for Teachers of Fourth Grade Gifted Students. Sacramento, California: California State Department of Education, December 1965. (ED 076 439)

Roid, G. H. Systems Design for Course Evaluation. April 1972. (ED 064 398)

Romiszowski, A. J. "A Systems Approach to Course Design and Evaluation." Educational Broadcasting International 6 (March 1973): 5-9. (EJ 079 067)

Rosenberg, Harry. Behavior Modification for the Classroom Teacher. North Hollywood, California: Career Aids. (Multimedia kit)

Roueche, John E., and Herrscher, Barton R. Toward Instructional Accountability: A Practical Guide to Educationa Change. Palo Alto, California: Westinghouse Learning Press, 1973.

Ryan, Thomas F., and Cruz, Josué. Assessment: Humanizing Decision Making. Washington, D.C.: American Association of Elementary-Kindergarten-Nursery Educators, 1974.

Sanders, James R. Techniques and Procedures for Formative Evaluation. Portland, Oregon: Northwest Regional Educational Laboratory, August 1974.

Scarbrough, M. M. An Investigation of the Effects of Selected Aspects of Individualized Instruction on the Achievement of Students. July 21, 1975. (ED 110 124)

Schaller, Lyle E. The Change Agent: The Strategy of Innovative Leadership. Nashville, Tennessee: Abingdon Press, 1972.

Schubert, Jane Gary. Selected Functional Components of a Vocational Education Counseling System for Urban Youth: A Three Year Evaluation Study. Pittsburgh, Pennsylvania: American Institutes for Research in the Behavioral Sciences, November 1973. (ED 114 633)

Selected Media for Learning: Readings From "Audiovisual Instruction". Washington D.C.: Association for Educational Communications and Technology, 1974.

Sequence Student Performance Objectives. Professional Vocational Teacher Education Module, nos. 53, 54 and 55. Columbus, Ohio: The Ohio State University, Center for Vocational and Technical Education, March 29, 1973. (ED 113 561)

Shearron, Gil. An Overview of CBTE. Washington D.C.: American Association of Colleges for Teacher Education, n.d. (Slide/tape)

Smith, Nick L. Pre-Product Evaluation: What to Do While Waiting for the Product. Portland, Oregon: Northwest Regional Educational Laboratory, November 1974.

Smith, Nick L., and Murray, Stephen L. The Status of Research on Models of Product Development and Evaluation. Portland, Oregon: Northwest Regional Educational Laboratory, August 1974.

Smoch, Richard, and Crooks, Terence. Diagnosis and Remediation of Instructional Problems Without the Use of Standardized Instruments. February 28, 1973. (ED076 659)

Straubel, James H. Development of a Course for Training Vocation-Technical Educators of the Effective Use of Criterion--Referenced Materials. Washington, D.C.: Aerospace Education Foundation, April 30. 1972.

Strike, Kenneth A., and Posner, George. Statements of Educational Objectives: Form and Function. Chicago, Illinois: American Educational Research Association, 1974. (ED 090 310)

Structuring the Classroom for Success. Columbus, Ohio: Charles E. Merrill Publishing Co., 1974. (Multimedia kit)

Sulzer, Beth, and Mayer, G. Roy. Behavior Modification Procedures for School Personnel. New York City, New York: Holt, Rinehart and Winston, 1972.

Swift, Marshall S., and Spivack, George. Alternative Teaching Strategies: Helping Behaviorally Troubled Children Achieve. Champaign, Illinois: Research Press, 1975.

Tackley, Donald S. Career-OCC Relating School Subjects to Career Possibilities. September 1974. (ED 115 738)

Tarr, Elvira R. Some Philosophical Issues in Competency-Based Teacher Education. February 26, 1973. (ED 076 667)

Teacher Aide Module. Livingston, Alabama: Livingston University, College of Education, n.d.

Teacher Education Program. Tallahassee, Florida: Florida State Department of Education, December 1973. These modules are available from: Panhandle Area Educational Cooperative (PAEC), Post Office Drawer 190, Chipley, FL 32428.
Cluster I: Individualizing Instruction.
Module TE-01-E Performance Assessment for Individualized Instruction.

Thompson, Glenn J. Individualized Instruction and the Role of the Media Specialist. July 1975. (ED 114 109.)

To Implement Change in Counseling and Career Guidance: Report of the National Workshop, April 27-29, 1975. Washington, D.C.: American Personnel and Guidance Association; American Vocational Association; National Advisory Council on Vocational Education, April 1975. (ED 120 639)

Tutor Modules. Livingston, Alabama: Livingston University, College of Education, n.d.

Tutorial Techniques and School Records. Individualized Performance-Based Teacher Education Program, Wilkit no. 57. Ogden, Utah: Weber State College, School of Education, 1975.

Twelker, Paul A. Instructional Simulation Systems: An Annotated Bibliography. Corvallis, Oregon: Continuing Education Publications, 1969.

U.S. Department of Labor. Bureau of Labor Statistics. Occupational Outlook Handbook, 1976-77 Edition. Washington, D.C.: U.S. Government Printing Office, 1976.

Wallace, Harold R. Review and Synthesis of Research on Cooperative Vocational Education. Research Series No. 60. Columbus, Ohio: ERIC Clearinghouse on Vocational and Technical Education, June 1970. (VT 010 859)

Warshaw, Mimi. "Behavior Modification in Secondary Schools." Educational Technology 15 (August 1975): 21-25.

Way, Max, and Moore, Sharon. Helping Adults Learn: A Handbook for Home Instruction; Paraprofessionals in Adult Basic Education. Morehead, Kentucky: Morehead State University, Appalachian Adult Education Center, July 1975. (ED 112 153)

Webb, Eugene J., and others. Unobtrusive Measures: Nonreactive Research in the Social Sciences. Chicago, Illinois: Rand McNally College Publishing Co., 1966.

Weinrach, Stephen G., ed. How Career Choices are Made. New York City, New York: MSS Information Corporation, September 1975. (ED 117 544)

Worthen, Blaine R. A Look at the Mosaic of Educational Evaluation and Accountability. Portland, Oregon: Northwest Regional Educational Laboratory, August 1974.

_____. Some Tasks and Competencies Frequently Required in Educational Research and Evaluation. Portland, Oregon: Northwest Regional Educational Laboratory, March 1976.

Write Student Performance Objectives for the Vocational Education Offering. Professional Vocational Teacher Education Module, no. 39. Columbus, Ohio: The Ohio State University, Center for Vocational and Technical Education, 1972. (ED 113 560)

Yeazell, Mary I.; Nardi, Anne H.; and Franklin, Thomas. A Comparison of Instructor-Paced and Self-Paced Groups in a Criterion-Referenced, Multi-Media Educational Psychology Course. April 1974. (ED 088 956)

Zifferblatt, Steven M. Improving Study and Homework Behaviors. Champaign, Illinois: Research Press, 1970.

## KEY TO BIBLIOGRAPHIC CITATIONS

ED numbers are assigned to documents that are described in Resources in Education (RIE), a monthly publication of the national Education Research Information Center (ERIC).

EJ numbers are assigned to articles that are described in Current Index to Journals in Education (CIJE), a monthly publication of the national Education Research Information Center (ERIC).

VT numbers are assigned to documents that are described in Abstracts of Instructional and Research Materials in Vocational and Technical Education (AIM/ARM), a bimonthly publication of the Ohio State University, The Center for Vocational Education.

# APPENDIX C

## FACIT INSTRUCTIONAL MATERIALS

## APPENDIX C

## FACIT INSTRUCTIONAL MATERIALS

1. Facilitator's Guide to FACIT
2. Introductory Filmstrip
3. Introduction to FACIT (Print)
4. Goal Setting Overview (Filmstrip)
5. Participant's Guide on Goal Setting (Print)
6. Goal Setting A: Identifying Goal-Related Information and Sources (Learning Option 1--Print)
7. Goal Setting B: Helping Students Solve Goal-Setting Problems (Learning Option 1--Print)
8. Objectives Overview (Filmstrip)
9. Participant's Guide on Objectives (Print)
10. Objectives A: Selecting and Sequencing Objectives (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)
11. Objectives B: Analyzing Objectives (Learning Option 1--Print; Learning Option 2--Audiotape with print)
12. Objectives C: Writing Objectives (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)
13. Objectives D: Validating Objectives (Learning Option 1--Print)
14. Criterion-Referenced Testing Overview (Filmstrip)
15. Participant's Guide on Criterion-Referenced Testing (Print)
16. Criterion-Referenced Testing A: Using Criterion-Referenced Pretests and Posttests (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)
17. Criterion-Referenced Testing B: Determining Types of Tests to Use (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)

18. Criterion-Referenced Testing C: Identifying Testing Requirements of Objectives (Learning Option 1--Print; Learning Option 2--Audiotape with Print)
19. Criterion-Referenced Testing D: Developing Performance-Rating Methods (Learning Option 1--Print; Learning Option 2--Audiotape with Print)
20. Criterion-Referenced Testing E: Constructing Selection Items (Learning Option 1--Print)
21. Criterion-Referenced Testing F: Constructing Supply Items (Learning Option 1--Print)
22. Learning Experiences Overview (Filmstrip)
23. Participant's Guide on Learning Experiences (Print)
24. Learning Experiences A: Defining the Functions of Instruction (Learning Option 1--Print; Learning Option 2--Audiotape with Print)
25. Learning Experiences B: Matching Task Characteristics with the Functions of Instruction (Learning Option 1--Print; Learning Option 2--Audiotape with Print)
26. Learning Experiences C: Matching Learner Characteristics with the Functions of Instruction (Learning Option 1--Print; Learning Option 2--Audiotape with Print)
27. Learning Experiences D: Planning Instruction for the Task and the Learner (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)
28. Learning Experiences E: Choosing Media for Instruction (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)
29. Learning Experiences F: Reviewing and Selecting Instructional Materials (Learning Option 1--Print; Learning Option 2--Audiotape with Print)

30. Learning Experiences G: Adapting Instructional Materials (Learning Option 1--Print)

31. Learning Experiences H: Developing Strategies for Pacing (Learning Option 1--Print; Learning Option 2--Audiotape with Print)

32. Learning Experiences I: Developing Strategies for Tutoring (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)

33. Learning Experiences J: Developing Strategies for Grouping (Learning Option 1--Print)

34. Evaluation Overview (Filmstrip)

35. Participant's Guide on Evaluation (Print)

36. Evaluation: Determining the Purpose and Scope of Evaluation (Learning Option 1--Print)

37. Evaluation B: Conducting Evaluation (learning Option 1--Print)

38. Evaluation C: Obtaining and Using Follow-Up Information (Learning Option 1--Print)

39. Instructional Management Overview (Filmstrip)

40. Participant's Guide on Instructional Management (Print)

41. Instructional Management A: Keeping Progress and Performance Records Learning Option 1--Print; Learning Option 2--Filmstrip with Print)

42. Instructional Management B: Ordering and Monitoring Instructional Resources (Learning Option 1--Print; Learning Option 2--Filmstrip with Print)

43. Instructional Management C: Allocating Instructional Resources (Learning Option 1--Print)

44. Instructional Management D: Using Proctors and Aides (Learning Option 1--Print)

45. Instructional Management E: Determining Grades (Learning Option 1--Print; Learning Option 2--Game)

46. Instructional Management F: Organizing Records (Learning Option 1--Print)